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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/706,645	11/12/2003	Charles R. Rapier	1856-42801 (40183)	7027
31889	7590	11/28/2006	EXAMINER	
DAVID W. WESTPHAL CONOCOPHILLIPS COMPANY - I.P. Legal P.O. BOX 1267 PONCA CITY, OK 74602-1267			WARTALOWICZ, PAUL A	
			ART UNIT	PAPER NUMBER
			1754	

DATE MAILED: 11/28/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/706,645

Applicant(s)

RAPIER ET AL.

Examiner

Paul A. Wartalowicz

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 September 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9, 11-13, 16-25, 40, 42-49, 76, 77, 80, 81 and 83-90 is/are pending in the application.
- 4a) Of the above claim(s) 10, 14, 15, 26-39, 41, 50-75, 78, 79 and 82 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9, 11-13, 16-25, 40, 42-49, 76, 77, 80, 81 and 83-90 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Withdrawn Arguments

The 102 rejections over Yamashita et al. have been withdrawn rendering the corresponding arguments moot.

Response to Arguments

Applicant's arguments filed 9/18/06 have been fully considered but they are not persuasive.

Applicant argues that McCarty does not teach such combinations.

However, it is unclear what the Applicant intended by the argument and what "such combinations" are. If the combinations of elements refer to coating a carrier material in order to specifically reduce the catalyst effect of the catalyst **and** the intention to prevent overheating of the catalyst structure, in particular overheating generated when the catalytic reaction is sufficient to initiate a homogenous gas phase reaction within the catalyst structure; this combination is not required for the rejection.

If the combinations of elements refer to alumina phase, a rare earth aluminate of a hexaaluminate or -like structure; and a rare earth aluminate of a perovskite or like structure in the catalyst support; both aluminates comprises the same rare earth metal; McCarty is not relied upon to teach this combination. In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of

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references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

Applicant's arguments drawn to the rejection of claims 40, and 41-49 in view of McCarty, claims 11, 13, 15, 22-25, and 42-44 over Yamashita in view of McCarty, and claim 12 over Yamashita in view of McCarty and Kato are moot in view of the new rejection in response to applicant's amendments.

Applicants comments with regard to the withdrawn claims pertaining to non-elected subject matter, the Examiner has noted the comments and will make an assessment of whether rejoinder is appropriate if the claims drawn to elected subject matter is allowed.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 40 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The recitation in claim 40 "an active ingredient comprising a rhodium alloy **or** a metal selected from the group consisting of rhodium, iridium, ruthenium, and combinations thereof" (emphasis added) and later in the claim "said rhodium being in an

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amount of from about 0.1 to about 20 wt% based on the total catalyst weight". It is not clear whether rhodium is necessarily present in the catalyst as evidenced by the Markush group in the claim (the metal selected can be something other than rhodium). An amendment such as "rhodium alloy or a mixture of rhodium and a metal selected from the group consisting of" would be appropriate. For the purposes of further examination, the claim will be treated as though rhodium is necessarily present in the catalyst in the claimed amount.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

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Claims 1, 3-7, 9-11, 13-17, 19-25 are rejected under 35 U.S.C. 102(b) as being anticipated by McCarty et al. (U.S. 6015285) in view of Deckman et al. (U.S. 6830596) and Yamashita et al. (U.S. 4906176).

McCarty et al. teach a support (col. 3, lines 25-28) wherein the support comprises lanthanum oxide hexa-aluminate (col. 3, lines 26-30) and lanthanum oxide alumina hexa-aluminate (meets the limitation wherein hexa-aluminate and alpha-alumina or theta-alumina comprises a support, col. 3, lines 28-31) wherein barrier layer comprises $\text{La}_2\text{O}_3 \cdot 11\text{Al}_2\text{O}_3$ hexa-aluminate (ratio of aluminum to rare earth is 11:1, meets the limitation wherein the catalyst support comprises between about 1 wt% and about 10 wt% of lanthanum, col. 12, lines 35-38) and wherein alpha alumina comprises the barrier layer (col. 12, lines 30-35) and has a perovskite structure (col. 5, lines 1-29) and wherein the surface area of the support is approximately $50 \text{ m}^2/\text{g}$ and calcination temperatures of 1150°C (col. 9, lines 40-48) and wherein gamma-alumina is a precursor (col. 8, line 65-col. 9, line 5) and wherein palladium is a catalyst (col. 3, lines 30-33).

As to the limitation of the support comprising perovskite and hexaaluminate, Deckman teaches that it is known for supports to be combinations of perovskite, hexaaluminate, and stabilized alumina (col. 6, lines 24-37).

Therefore, it would have been obvious to one of ordinary skill in the art to provide a support comprising a hexaaluminate and a perovskite structure in McCarty because McCarty teaches these supports individually and it is known in the art to combine perovskites and hexaaluminates in supports (col. 6, lines 24-37) as taught by Deckman.

Regarding the limitation wherein the catalyst support contains not more than 20% of alpha alumina, Yamashita et al. teach a support such that alpha-alumina is mixed with a lanthanum-stabilized alumina in an amount of 5-30% by weight (col. 7, lines 15-20).

Therefore, it would have been obvious to one of ordinary skill in the art to provide a support comprising alpha-alumina mixed with a lanthanum-stabilized alumina in an amount of 5-30% by weight (col. 7, lines 15-20) in McCarty because it is well known to do so in a substantially high temperature similar support as taught by Yamashita et al.

Claims 2, 8, 18, 40-49, 76-77, 80-81, and 83-90 are rejected under 35 U.S.C. 103(a) as being unpatentable over McCarty et al. (U.S. 6015285) in view of Deckman et al. (U.S. 6830596) and Yamashita et al. (U.S. 4906176).

McCarty et al. teach a support (col. 3, lines 25-28) wherein the support comprises lanthanum oxide hexa-aluminate (col. 3, lines 26-30) and lanthanum oxide alumina hexa-aluminate (meets the limitation wherein hexa-aluminate and alpha-alumina or theta-alumina comprises a support, col. 3, lines 28-31) wherein barrier layer comprises $\text{La}_2\text{O}_3 \cdot 11\text{Al}_2\text{O}_3$ hexa-aluminate (ratio of aluminum to rare earth is 11:1, meets the limitation wherein the catalyst support comprises between about 1 wt% and about 10 wt% of lanthanum, col. 12, lines 35-38) and wherein alpha alumina comprises the barrier layer (col. 12, lines 30-35) and has a perovskite structure (col. 5, lines 1-29) and wherein the surface area of the support is approximately $50 \text{ m}^2/\text{g}$ and calcination

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temperatures of 1150°C (col. 9, lines 40-48) and wherein gamma-alumina is a precursor (col. 8, line 65-col. 9, line 5) and wherein palladium is a catalyst (col. 3, lines 30-33).

As to the limitation of the support comprising perovskite and hexaaluminate, Deckman teaches that it is known for supports to be combinations of perovskite, hexaaluminate, and stabilized alumina (col. 6, lines 24-37).

Therefore, it would have been obvious to one of ordinary skill in the art to provide a support comprising a hexaaluminate and a perovskite structure in McCarty because McCarty teaches these supports individually and it is known in the art to combine perovskites and hexaaluminates in supports (col. 6, lines 24-37) as taught by Deckman.

Regarding the limitation wherein the catalyst support contains not more than 20% of alpha alumina, Yamashita et al. teach a support such that alpha-alumina is mixed with a lanthanum-stabilized alumina in an amount of 5-30% by weight (col. 7, lines 15-20).

McCarty fails to teach the claimed percentage by weight of the rare earth aluminate with high molar ratio of aluminum to rare earth, the rare earth aluminate with high molar ratio and the alumina phase are intimately mixed, claimed surface area, an active ingredient of the catalyst comprising rhodium or an alloy thereof.

As to the limitation of the claimed percentage by weight of the rare earth aluminate with high molar ratio of aluminum to rare earth, Yamashita et al. teach a support comprising the composite oxide (alumina and a rare earth) present in an amount of from 15 to 95% by weight of the support (col. 5, lines 6-12).

Therefore, it would have been obvious to one of ordinary skill in the art to provide a support comprising the composite oxide (alumina and a rare earth) present in an amount of from 15 to 95% by weight of the support (col. 5, lines 6-12) in McCarty because it is well known to do so in a substantially similar high temperature support as taught by Yamashita et al.

As to the limitation of claimed surface area, Yamashita et al. teach a support wherein the support has a surface area of from 20 to 100 m²/g (col. 5, lines 4-6).

Therefore, it would have been obvious to one of ordinary skill to provide a support having a surface area of from 20 to 100 m²/g (col. 5, lines 4-6) in McCarty because it is well known to do so in a substantially similar high temperature support as taught by Yamashita et al.

As to the limitation of the rare earth aluminate with high molar ratio and the alumina phase are intimately mixed, Yamashita et al. teach an intimate mixing of aluminum and lanthanum (col. 7, lines 35-38).

Therefore, it would have been obvious to one of ordinary skill to provide a rare earth aluminate (containing lanthanum) and alumina phase intimately mixed in McCarty because it is well known to mix a rare earth with an alumina (col. 7, lines 35-38) in a substantially similar high temperature support as taught by Yamashita et al.

As to the limitation of an active ingredient of the catalyst comprising rhodium or an alloy thereof, Yamashita et al. teach a catalyst structure comprising 1.5 wt.% of platinum and 0.4 wt.% of rhodium (col. 13, lines 27-33).

Therefore, it would have been obvious to one of ordinary skill in the art to provide a catalyst comprising 1.5 wt.% of platinum and 0.4 wt.% of rhodium (col. 13, lines 27-33) because it is well known to do so in a substantially similar high temperature support as taught by Yamashita et al. The prior art range (0.4 wt.% of rhodium) is so close (claimed range 0.5-10 wt.% of rhodium) that one skilled in the art would have expected it to have the same properties. *Titanium Metals Corp. v. Banner*, 227 USPQ 773.

Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over McCarty et al. (U.S. 6015285) in view of Deckman et al. (U.S. 6830596) and Yamashita et al. (U.S. 4906176) and Kato et al. (U.S. 4793797).

McCarty teach a support as described above in claim 1. McCarty fail to teach wherein the rare earth aluminate has a chemical formula of MAI_yO_z , where y is between 11 and 12; z is between 18 and 19; and M comprises a combination of lanthanum and samarium.

Kato et al., however, teach a heat resistant carrier (support, col. 2, lines 55-58) wherein lanthanum and samarium are included in a beta-alumina support (col. 16, lines 30-35) for the purpose of employing multiple rare-earth metals in a known carrier comprising beta-alumina.

Therefore, it would have been obvious to one of ordinary skill in the art at the time applicant's invention was made to provide wherein lanthanum and samarium are included in a beta-alumina support (col. 16, lines 30-35) in McCarty in order to employ

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multiple rare-earth metals in a known carrier comprising beta-alumina as taught by Kato et al.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Paul A. Wartalowicz whose telephone number is (571) 272-5957. The examiner can normally be reached on 8:30-6 M-Th and 8:30-5 on Alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stanley Silverman can be reached on (571) 272-1358. The fax phone

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number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Paul Wartalowicz
November 21, 2006



STUART L. HENDRICKSON
PRIMARY EXAMINER